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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/476,612	12/31/1999	NIMROD DIAMANT	042390.P8086	8069

7590 10/23/2003

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EXAMINER	
QUINONES, EDEL H	
ART UNIT	**PAPER NUMBER**
2131	4

DATE MAILED: 10/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/476,612	DIAMANT, NIMROD	
	Examiner	Art Unit	
	Edel H Quinones	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 6 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 December 1999* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "202", "204", "206", "208", "210", "NIC 1 118", "NIC 2 120", "NIC 3 122", "202", and "312". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "310" has been used to designate both the "Plain Mode?" decision block and the "Transmit Network Data As Usual" block in Figure 4. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. Claim 25 is objected to because of the following informalities: the word "is" should be changed to "if". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5, 8-12, 15-17, and 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,253,334 to Amdahl et al.

In regards to Claim 1, Amdahl et al discloses a method for transferring data between at least one transport stack and a plurality of network adapters (i.e. NICs) coupled to a computer network that supports recovery from network adapter and a connection failure (i.e. working in adapter fault tolerance mode) (See Column 2, Lines 55-59). This plurality of NICs uses a primary NIC to represent the entire group to the operating system. Amdahl et al discloses that the MULTISPAN PRESCAN process determines the NIC through which the data packets are to be sent (see Column 7, Lines 59-61). Once the MULTISPAN PRESCAN module has analyzed the packets, they are output to their respective NICs and thereafter sent to the network backbone. The packets could also be routed through the MULTISPAN PRESCAN module to secondary NICs and thereafter out to the network backbone (see Column 7, Lines 62-67). This distribution of data could be directed according to some algorithm, which may vary from one embodiment to another or from one group to another within the same embodiment. It is understood that one of these algorithms could make the routing determination based on whether the data is primary or secondary.

In regards to Claims 2, 4, 9 and 11, Amdahl et al discloses that after loading the MULTISPAN.NLM module, the user can configure the system to load drivers for both the primary NIC and one or more secondary NICs using the INETCFG command or by manually editing AUTOEXEC.NCF or manually loading drivers at the system console (see Column 8, Lines 32- 36). It also discloses that the system selects a NIC to send out packets from the plurality of NICs according to an algorithm specific to one embodiment of the invention. Some embodiments of the invention will choose a NIC that is less loaded than at least one other NIC in the plurality of NICs (see Column 15, Lines 48- 53).

In regards to Claims 3 and 10, Amdahl et al discloses that when load sharing is enabled, packets are sent out from all available NICs. That is, if the primary NIC has available bandwidth, then it is also used to send out packets.

In regards to Claims 5 and 12, Amdahl et al discloses that outgoing packets are subject to packet processing that includes performing any encryption or compression on the payload including the source and destination address, and wrapping the payload with a header including a destination MAC address (See Column 22, Lines 33-39). It is understood that Amdahl et al includes IPSEC encryption in the realm of "any encryption".

In regards to Claim 8, Amdahl et al discloses that the MULTISPAN system can be implemented in many different forms. Programming languages such as C, C++, Cobol, Fortran, Basic or any other conventional language can be employed to provide the functions of the MULTISPAN system. In addition, software related to the

MULTISPAN system can be stored within many types of programmed storage devices. A programmed storage device can be a Random Access Memory, Read-Only Memory, floppy disk, hard disk, CD-ROM or the like. The MULTISPAN system discloses a method for transferring data between at least one transport stack and a plurality of network adapters (i.e. NICs) coupled to a computer network that supports recovery from network adapter and a connection failure (i.e. working in adapter fault tolerance mode) (See Column 2, Lines 55-59). This plurality of NICs uses a primary NIC to represent the entire group to the operating system. Amdahl et al discloses that the MULTISPAN PRESCAN process determines the NIC through which the data packets are to be sent (see Column 7, Lines 59-61). Once the MULTISPAN PRESCAN module has analyzed the packets, they are output to their respective NICs and thereafter sent to the network backbone. The packets could also be routed through the MULTISPAN PRESCAN module to secondary NICs and thereafter out to the network backbone (see Column 7, Lines 62-67). This distribution of data could be directed according to some algorithm, which may vary from one embodiment to another or from one group to another within the same embodiment. It is understood that this algorithm could make the routing determination based on whether the data is primary or secondary.

In regards to Claims 15 and 21, Amdahl et al discloses that the invention includes a system providing failure detection and re-routing of network packets in a computer having multiple network interface cards (NICs) connected as groups (MULTISPAN groups) each to a common network segment. In addition, embodiments of the invention include load sharing to distribute network packet traffic across the NICs

in a group (see Column 4, Lines 1-4). The MULTISPAN driver continuously monitors the activity of any bound adapters and determines if a bound network interface card is not functioning correctly. There are 3 different states for network interface cards. The "IN-USE" state means that the adapter is the primary adapter. All packets will be sent and received through this adapter when the load-sharing feature is disabled. When load sharing is enabled, packets are sent out from all available NICs. The "READY" state means the adapter is in standby mode, but is operating correctly. The "DISABLED" state means that the adapter is not operating correctly but that it still receives all broadcast, multicast and directed packets.

Amdahl et al discloses that the MULTISPAN system can be implemented in many different forms. Programming languages such as C, C++, Cobol, Fortran, Basic or any other conventional language can be employed to provide the functions of the MULTISPAN system. In addition, software related to the MULTISPAN system can be stored within many types of programmed storage devices. A programmed storage device can be a Random Access Memory, Read-Only Memory, floppy disk, hard disk, CD-ROM or the like (see Column 4, Lines 25-34).

In regards to Claims 16 and 22, Amdahl et al discloses that the MSP.NLM module should be loaded before any LAN drivers. In specific, in points out that the MSP.NLM module should normally be loaded under Netware through the STARTUP.NCF file (see Column 7, Lines 6-8). It is also noted that Novell Netware would only allow packets to flow through a single network interface card. Therefore,

MULTISPAN presents the primary NIC of each group as this single adapter, transparently applying its load sharing and failure recovery to the group.

In regards to Claims 17 and 23, Amdahl et al discloses that the MULTISCAN PRESCAN process determines the NIC through which the packet is to be sent. Once the MULTISPAN PRESCAN module has analyzed the packets, they are output to their respective target network interface drivers. The packets could also be routed through the MULTISPAN PRESCAN module to a secondary network interface card driver and thereafter out to the network backbone (see Column 7, Lines 62-67). It is understood from the above, that the MULTISPAN module determines whether to route packets to a primary or secondary NIC based on the processing capabilities of the adapter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 6, 13, 18 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,253,334 to Amdahl et al as applied to claims 1, 8, 15 and 21 above and further in view of U.S. Patent 6,327,614 to Asano et al.

In regards to claims 6 and 13, Amdahl et al discloses a system for transferring data between at least one transport stack and a plurality of network adapters (i.e. NICs)

coupled to a computer network that supports recovery from network adapter and a connection failure (i.e. working in adapter fault tolerance mode) (See Column 2, Lines 55-59). This plurality of NICs uses a primary NIC to represent the entire group to the operating system. Amdahl et al discloses that the MULTISPAN PRESCAN process determines the NIC through which the data packets are to be sent (see Column 7, Lines 59-61). Once the MULTISPAN PRESCAN module has analyzed the packets, they are output to their respective NICs and thereafter sent to the network backbone. The packets could also be routed through the MULTISPAN PRESCAN module to secondary NICs and thereafter out to the network backbone (see Column 7, Lines 62-67). This distribution of data could be directed according to some algorithm, which may vary from one embodiment to another or from one group to another within the same embodiment. It is understood that one of these algorithms could make the routing determination based on whether the data is primary or secondary.

Amdahl et al also discloses that the MULTISPAN system can be implemented in many different forms. Programming languages such as C, C++, Cobol, Fortran, Basic or any other conventional language can be employed to provide the functions of the MULTISPAN system. In addition, software related to the MULTISPAN system can be stored within many types of programmed storage devices. A programmed storage device can be a Random Access Memory, Read-Only Memory, floppy disk, hard disk, CD-ROM or the like.

Amdahl et al fails to teach that the system receives data for secondary use processing from an operating system.

Asano et al shows in Figure 7 that a NIC consist of a processor unit. It is known in the art that an operating system can distribute processing to a group of processors. Ideally this makes a task run faster because there are multiple processors executing it.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made, to have employed the teachings of Asano et al within the system of Amdahl et al, because by viewing a NIC as a processor, as taught by Asano et al, it would have been possible to have the NIC receive data for secondary use from an operating system and to speed up the processing of such data by utilizing the team of NICs in a parallel processing configuration.

In regards to claims 18 and 24, Amdahl et al discloses that the invention includes a system providing failure detection and re-routing of network packets in a computer having multiple network interface cards (NICs) connected as groups (MULTISPAN groups) each to a common network segment. In addition, embodiments of the invention include load sharing to distribute network packet traffic across the NICs in a group (see Column 4, Lines 1-4). The MULTISPAN driver continuously monitors the activity of any bound adapters and determines if a bound network interface card is not functioning correctly. There are 3 different states for network interface cards. The "IN-USE" state means that the adapter is the primary adapter. All packets will be sent and received through this adapter when the load-sharing feature is disabled. When load sharing is enabled, packets are sent out from all available NICs. The "READY" state means the adapter is in standby mode, but is operating correctly. The "DISABLED" state means

that the adapter is not operating correctly but that it still receives all broadcast, multicast and directed packets.

Amdahl et al also discloses that the MULTISPAN system can be implemented in many different forms. Programming languages such as C, C++, Cobol, Fortran, Basic or any other conventional language can be employed to provide the functions of the MULTISPAN system. In addition, software related to the MULTISPAN system can be stored within many types of programmed storage devices. A programmed storage device can be a Random Access Memory, Read-Only Memory, floppy disk, hard disk, CD-ROM or the like (see Column 4, Lines 25-34).

Amdahl et al fails to teach that the system receives data for secondary use processing from an operating system.

Asano et al shows in Figure 7 that a NIC consist of a processor unit. It is known in the art that an operating system can distribute processing to a group of processors. Ideally this makes a task run faster because there are multiple processors executing it.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made, to have employed the teachings of Asano et al within the system of Amdahl et al, because by viewing a NIC as a processor, as taught by Asano et al, it would have been possible to have the NIC receive data for secondary use from an operating system and to speed up the processing of such data by utilizing the team of NICs in a parallel processing configuration.

6. Claims 7, 14, 20 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,253,334 to Amdahl et al as applied to claims 1, 8, 15 and 21 above and further in view of U.S. Patent 5,978,912 to Rakavy et al.

In regards to claims 7 and 14, Amdahl et al discloses a system for transferring data between at least one transport stack and a plurality of network adapters (i.e. NICs) coupled to a computer network that supports recovery from network adapter and a connection failure (i.e. working in adapter fault tolerance mode) (See Column 2, Lines 55-59). This plurality of NICs uses a primary NIC to represent the entire group to the operating system. Amdahl et al discloses that the MULTISPAN PRESCAN process determines the NIC through which the data packets are to be sent (see Column 7, Lines 59-61). Once the MULTISPAN PRESCAN module has analyzed the packets, they are output to their respective NICs and thereafter sent to the network backbone. The packets could also be routed through the MULTISPAN PRESCAN module to secondary NICs and thereafter out to the network backbone (see Column 7, Lines 62-67). This distribution of data could be directed according to some algorithm, which may vary from one embodiment to another or from one group to another within the same embodiment. It is understood that one of these algorithms could make the routing determination based on whether the data is primary or secondary.

Amdahl et al discloses that the MULTISPAN system can be implemented in many different forms. Programming languages such as C, C++, Cobol, Fortran, Basic or any other conventional language can be employed to provide the functions of the MULTISPAN system. In addition, software related to the MULTISPAN system can be

stored within many types of programmed storage devices. A programmed storage device can be a Random Access Memory, Read-Only Memory, floppy disk, hard disk, CD-ROM or the like.

Amdahl et al fails to teach that the system receives data for secondary use processing from an application programming interface (API) configured to submit data for secondary use processing by the team of NICs.

Rakavy et al discloses an invention that is directed to a method and system of communicating with a computer through a network prior to booting the computer's operating system or after operating system failure. A networking application program interface (API) is implemented in a network enhanced BIOS fitted to a first computer. This computer is preferably supplied with a NIC card and NIC device driver file. External references in the NIC device driver, which would normally be resolved to services provided by elements of the operating system, are instead resolved to reference services provided by the API of the network enhanced BIOS. This is done so as to leverage the network enhanced BIOS to use standard NIC device drivers developed for existing operating systems, and thus not require customized device driver software for each of the available NIC types.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have employed the teachings of Rakavy et al within the system of Amdahl et al, because by having the NIC cards available to exchange data with application programming interfaces (APIs), as taught by Rakavy et al, it would have been possible to leverage the functionality provided by such APIs.

In regards to claims 20 and 25, Amdahl et al discloses that the invention includes a system providing failure detection and re-routing of network packets in a computer having multiple network interface cards (NICs) connected as groups (MULTISPAN groups) each to a common network segment. In addition, embodiments of the invention include load sharing to distribute network packet traffic across the NICs in a group (see Column 4, Lines 1-4). The MULTISPAN driver continuously monitors the activity of any bound adapters and determines if a bound network interface card is not functioning correctly. There are 3 different states for network interface cards. The "IN-USE" state means that the adapter is the primary adapter. All packets will be sent and received through this adapter when the load-sharing feature is disabled. When load sharing is enabled, packets are sent out from all available NICs. The "READY" state means the adapter is in standby mode, but is operating correctly. The "DISABLED" state means that the adapter is not operating correctly but that it still receives all broadcast, multicast and directed packets.

Amdahl et al discloses that the MULTISPAN system can be implemented in many different forms. Programming languages such as C, C++, Cobol, Fortran, Basic or any other conventional language can be employed to provide the functions of the MULTISPAN system. In addition, software related to the MULTISPAN system can be stored within many types of programmed storage devices. A programmed storage device can be a Random Access Memory, Read-Only Memory, floppy disk, hard disk, CD-ROM or the like (see Column 4, Lines 25-34).

Amdahl et al fails to teach that the system receives data for secondary use processing from an application programming interface (API) configured to submit data for secondary use processing by the team of NICs.

Rakavy et al discloses an invention that is directed to a method and system of communicating with a computer through a network prior to booting the computer's operating system or after operating system failure. A networking application program interface (API) is implemented in a network enhanced BIOS fitted to a first computer. This computer is preferably supplied with a NIC card and NIC device driver file. External references in the NIC device driver, which would normally be resolved to services provided by elements of the operating system, are instead resolved to reference services provided by the API of the network enhanced BIOS. This is done so as to leverage the network enhanced BIOS to use standard NIC device drivers developed for existing operating systems, and thus not require customized device driver software for each of the available NIC types.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have employed the teachings of Rakavy et al within the system of Amdahl et al, because by having the NIC cards available to exchange data with application programming interfaces (APIs), as taught by Rakavy et al, it would have been possible to leverage the functionality provided by such APIs.

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,253,334 to Amdahl et al in view of U.S. Patent 6,327,614 to Asano et al as applied to Claim 18 above, and further in view of U.S. Patent 5,978,912 to Rakavy et al.

The combination as thought by Amdahl et al as modified by Asano et al discloses a method for utilizing a team of NICs operating in adaptive load balancing mode consisting of identifying active and failed NICs, receiving data for processing, and distributing the data based on whether the data was for primary or secondary use. The method further comprises installing the team of NICs in a computing device having an operating system.

The combination, however, does not disclose that an application programming interface (API) is configured to submit data for secondary use processing by the team.

Rakavy et al discloses an invention that is directed to a method and system of communicating with a computer through a network prior to booting the computer's operating system or after operating system failure. A networking application program interface (API) is implemented in a network enhanced BIOS fitted to a first computer. This computer is preferably supplied with a NIC card and NIC device driver file. External references in the NIC device driver, which would normally be resolved to services provided by elements of the operating system, are instead resolved to reference services provided by the API of the network enhanced BIOS. This is done so as to leverage the network enhanced BIOS to use standard NIC device drivers developed for existing operating systems, and thus not require customized device driver software for each of the available NIC types.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have employed the teachings of Rakavy et al within the combination of Amdahl et al and Asano et al, because by having the NIC cards available to exchange data with application programming interfaces (APIs), as taught by Rakavy et al, it would have been possible to leverage the functionality provided by such APIs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edel H Quinones whose telephone number is 703-305-8745. The examiner can normally be reached on M-F (8:00AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheik can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

FRANTZ B. JEAN
PRIMARY EXAMINER

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